STORE FRONTS

MONOLITHIC CONCRETE
CONCRETE MASONRY

PORTLAND CEMENT ASSOCIATION
33 WEST GRAND AVENUE CHICAGO

A NATIONAL ORGANIZATION

TO IMPROVE AND EXTEND THE USES OF CONCRETE

The Portland Cement Association is a service organization maintained by manufacturers of portland cement. A part of its function is to promote the better and more intelligent use of concrete.

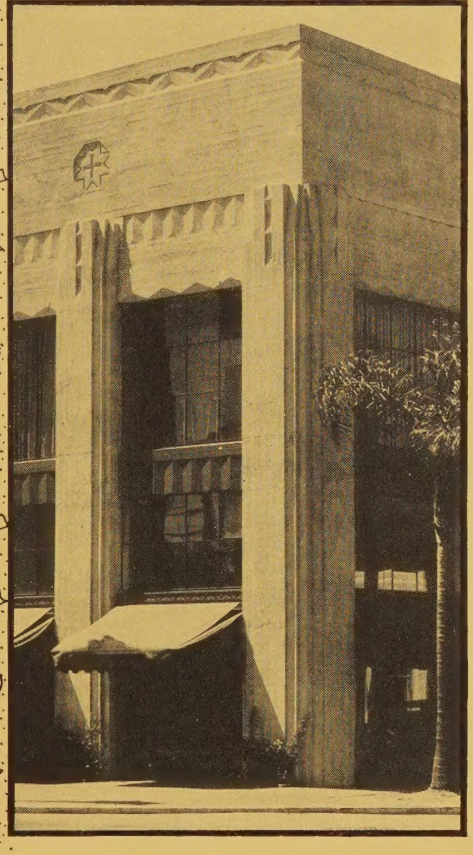
The successful use of concrete, whether for structural or decorative purposes, is controlled by fundamental principles that are simple yet exacting. These principles when reasonably observed will permit the architect to design and build in concrete with a confidence that the resulting structure will express the spirit of the time and that it will endure.

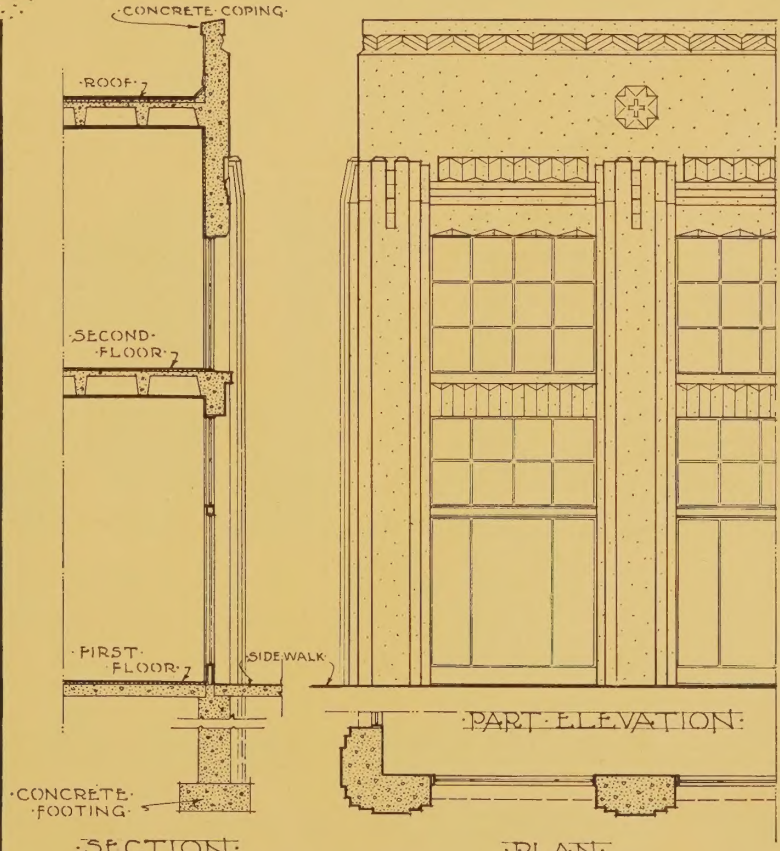
The Association maintains experienced architectural and engineering staffs, whose services are available to the professions in all matters pertaining to the use of concrete. You are invited to use this service, for which there is no obligation.

Publications devoted to a wide variety of uses of concrete have been issued. Some of the subjects of special interest to architects are listed on the opposite side of this folder. The data they contain represent the accumulated knowledge and experience of twenty-eight years of Portland Cement Association service. These booklets are available on request.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue
CHICAGO
Offices in Principal Cities

Concrete for Permanence





SECTION PLAN

JOHN AND DONALD B. PARKINSON ARCHITECTS

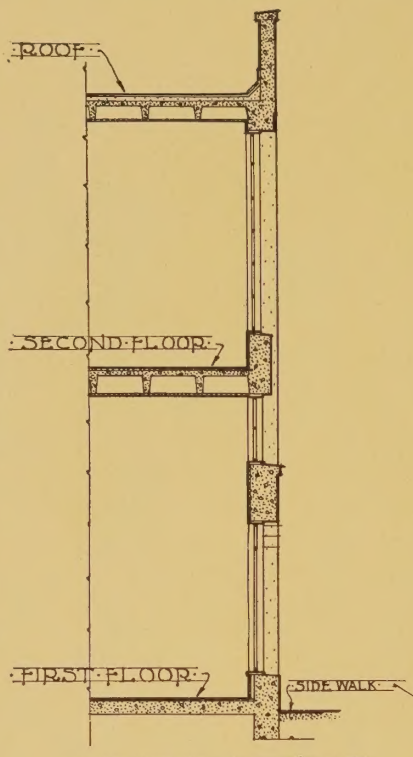
· STORE · FRONTS · IN · CONCRETE ·

· CONCRETE · FOR · PERMANENCE ·

· PORTLAND · CEMENT · ASSOCIATION · · 33 · WEST · GRAND · AVENUE · CHICAGO ·

· TO · KNOW · CONCRETE · IS · TO · USE · IT — · CONSULT · AN · ARCHITECT ·

Store Fronts — A. I. A. File No. 4



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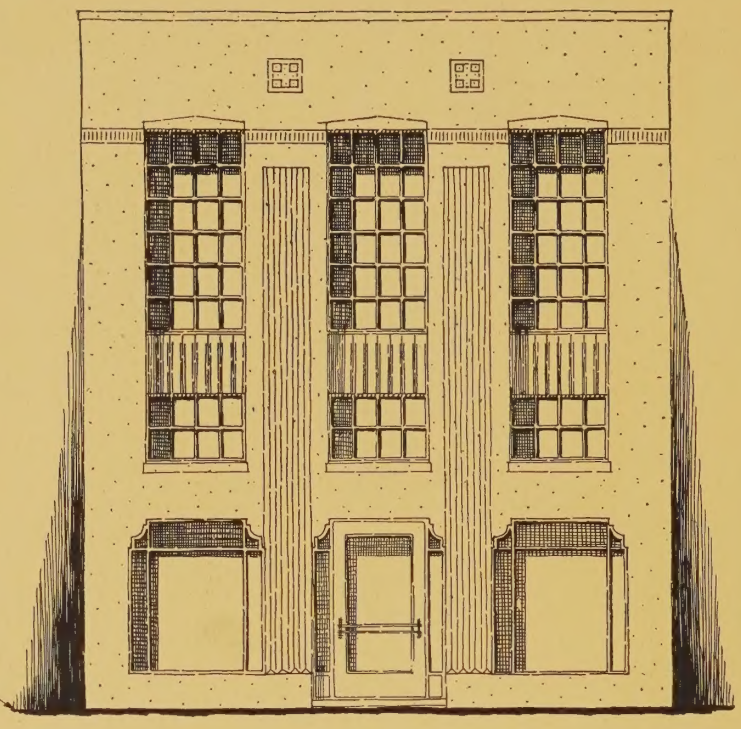

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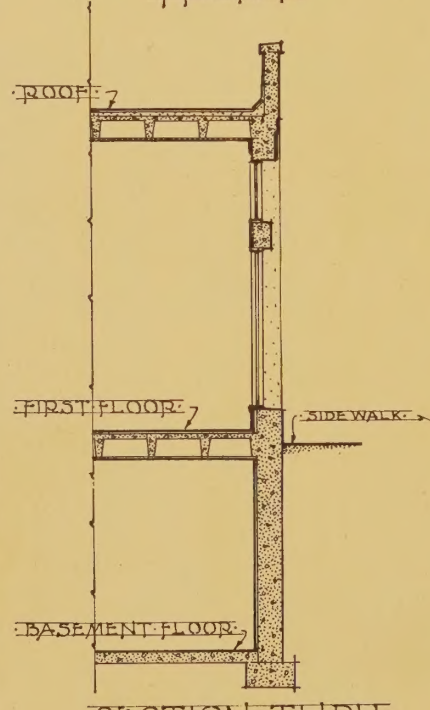

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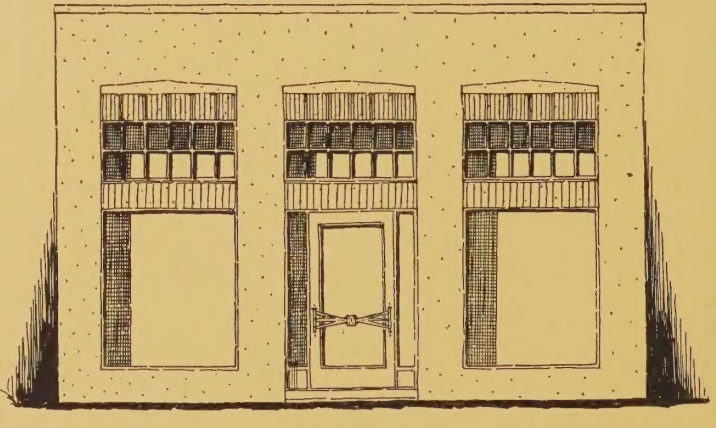
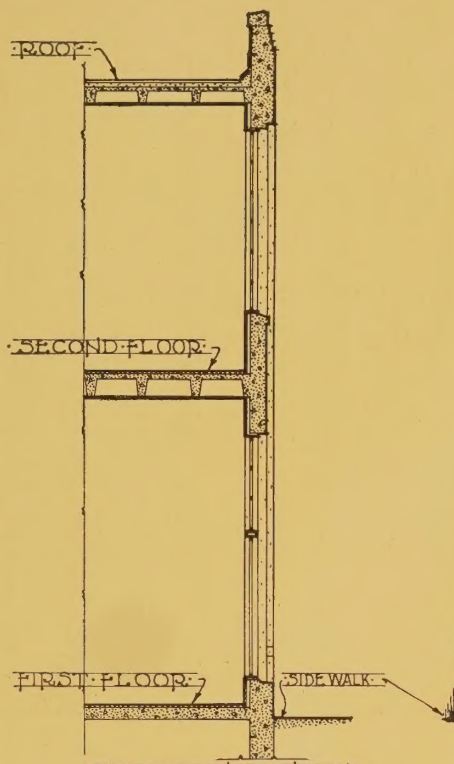


ONE STORY ELEVATION

FLOOR PLAN

TO KNOW CONCRETE IS TO USE IT — CONSULT AN ARCHITECT



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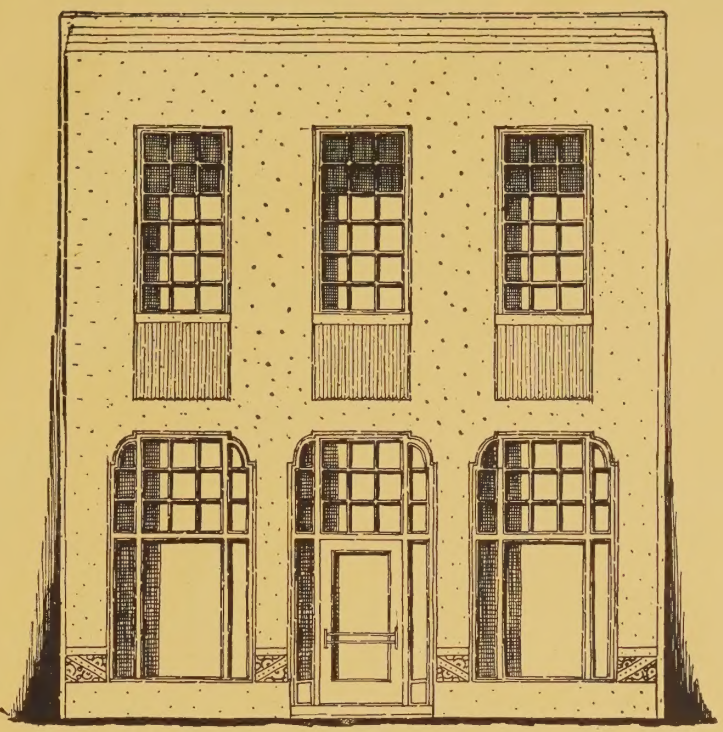

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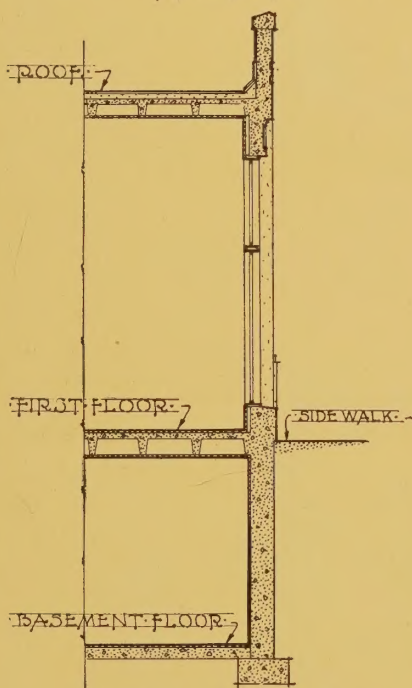

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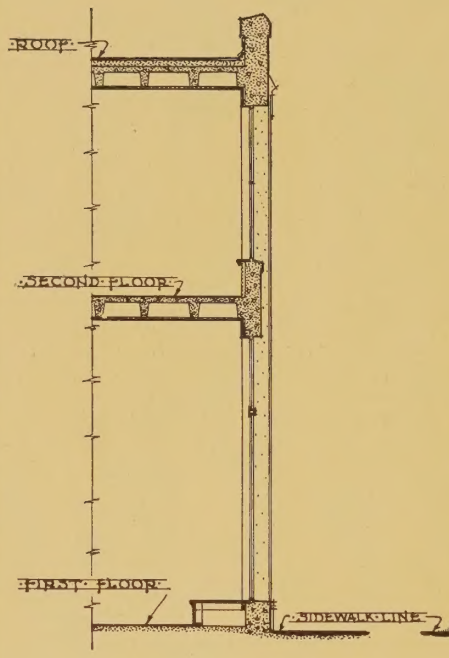
ONE STORY ELEVATION

FLOOR PLAN

TO KNOW CONCRETE IS TO USE IT — CONSULT AN ARCHITECT



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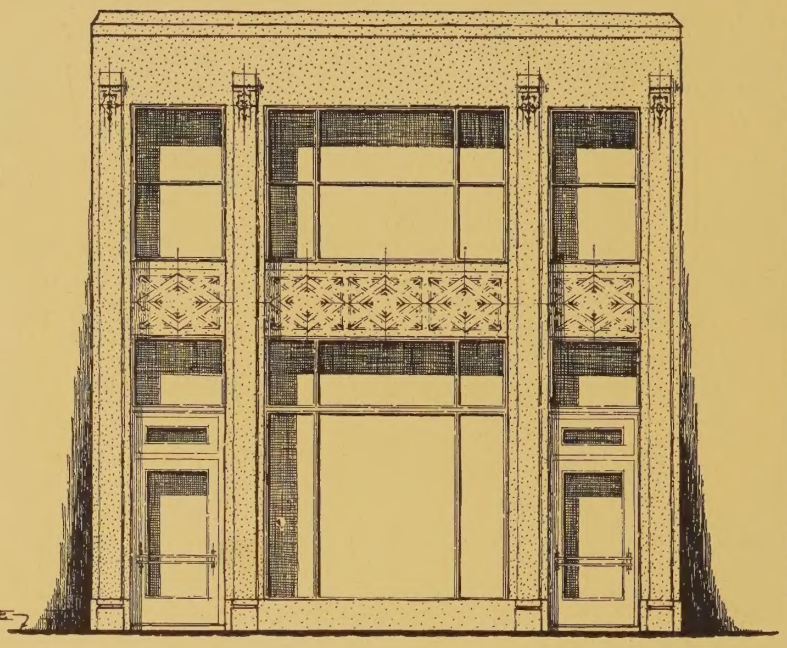

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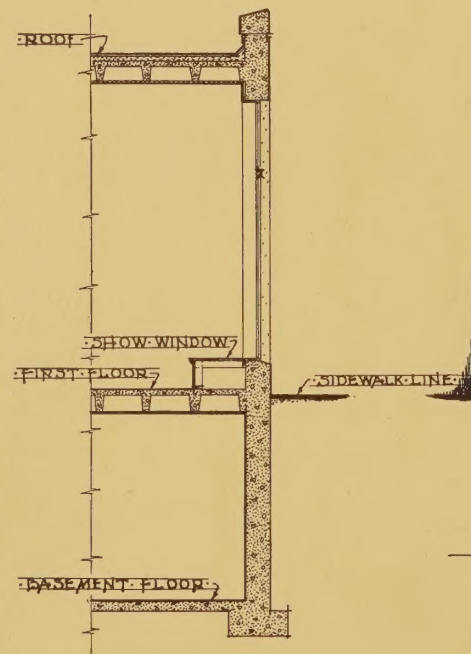

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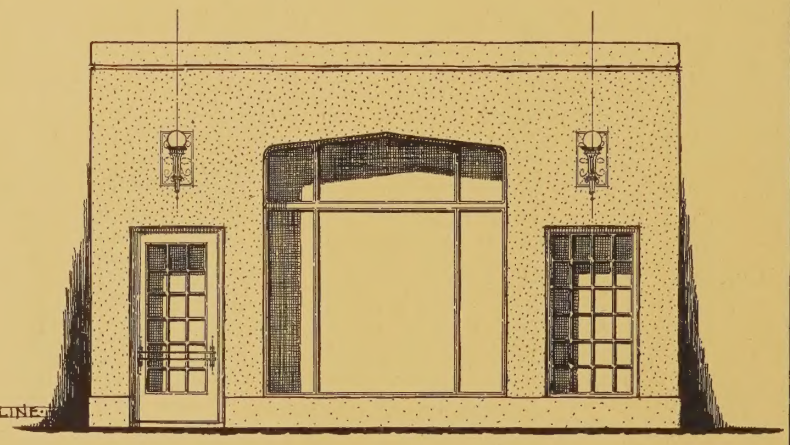

ONE STORY ELEVATION

TO KNOW CONCRETE IS TO USE IT — CONSULT AN ARCHITECT

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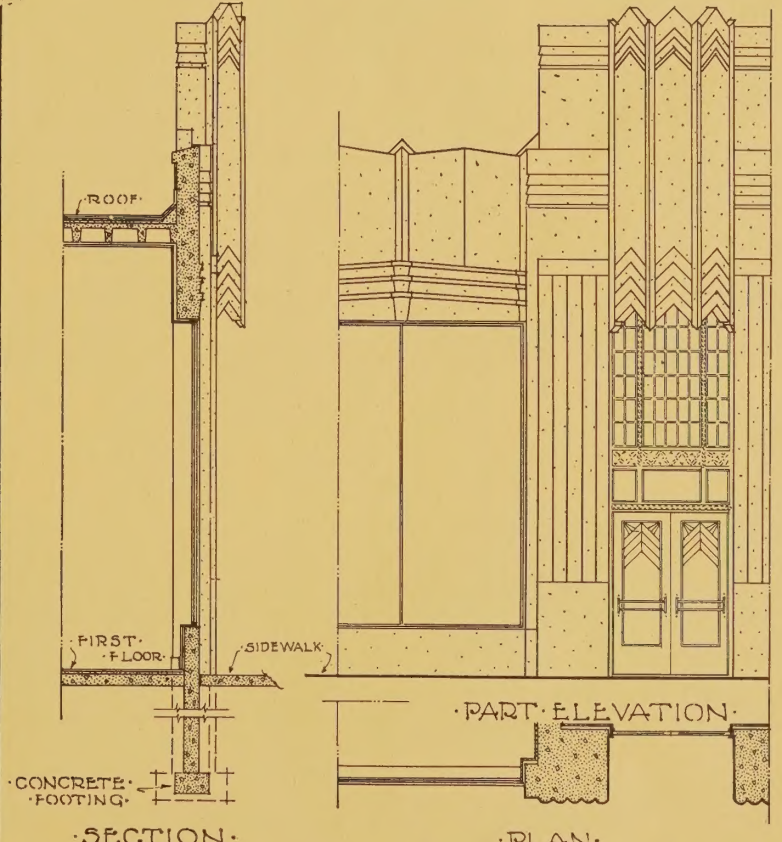

SECTION PLAN

MORGAN · WALLS · AND · CLEMENTS · ARCHITECTS

STORE FRONTS · IN · CONCRETE

· CONCRETE · FOR · PERMANENCE ·

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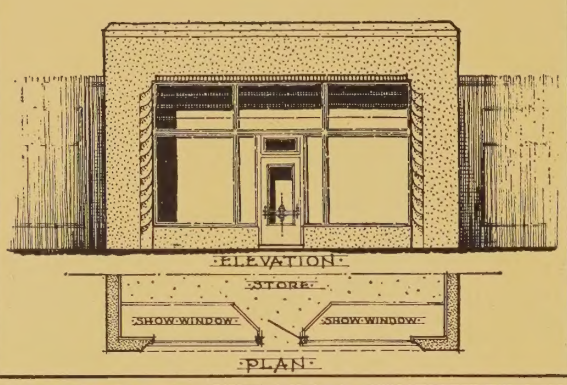
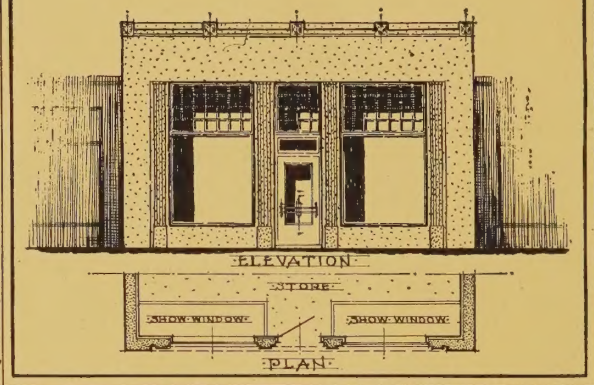
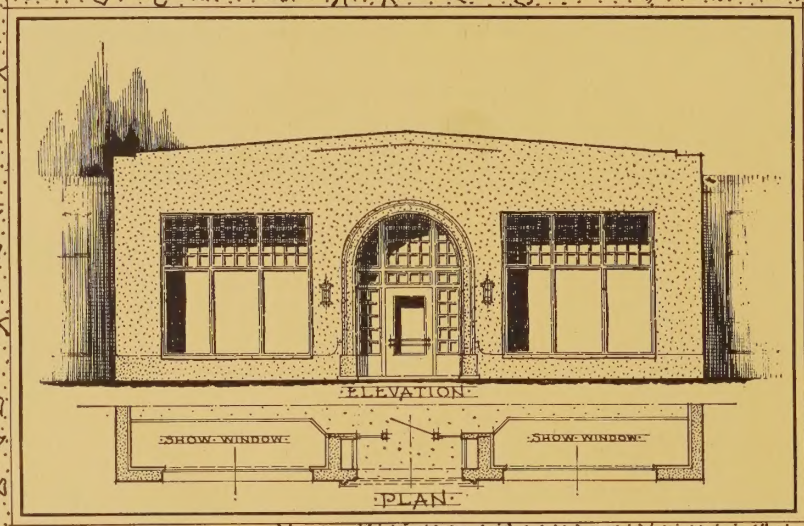
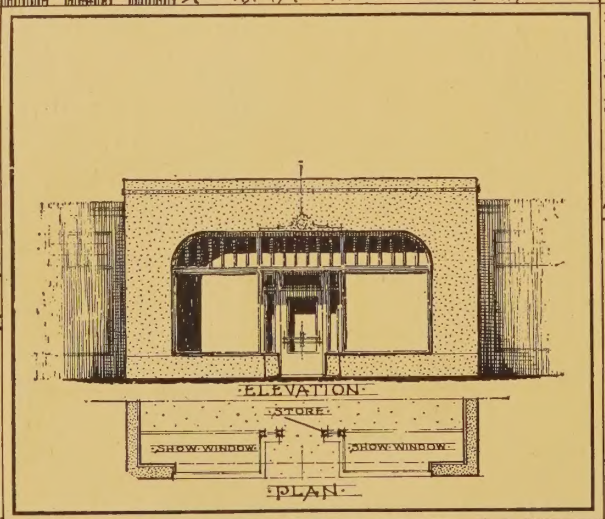
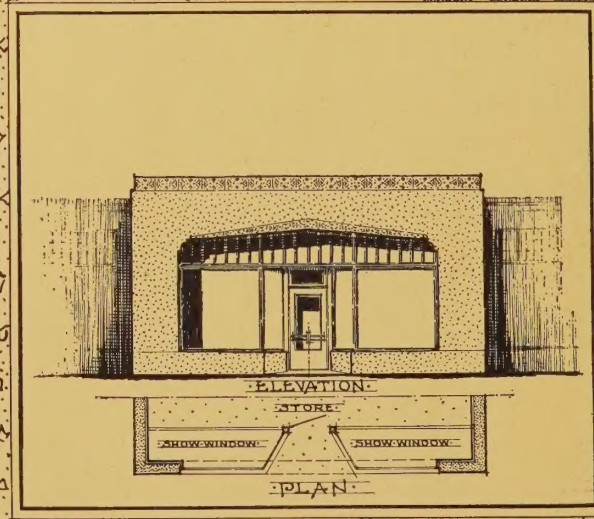
Store Fronts — A. I. A. File No. 4



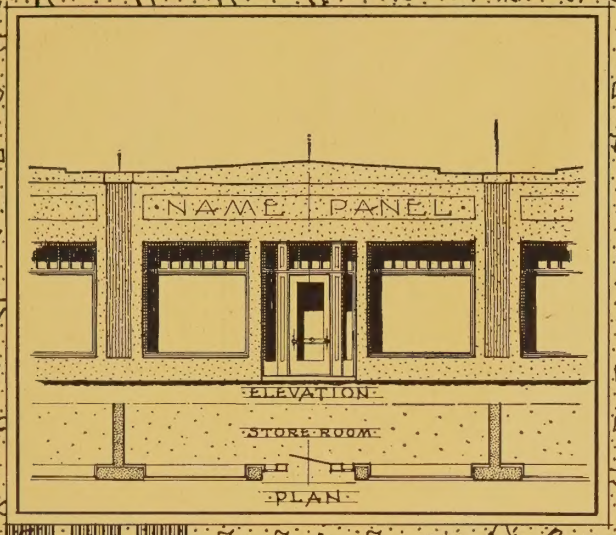


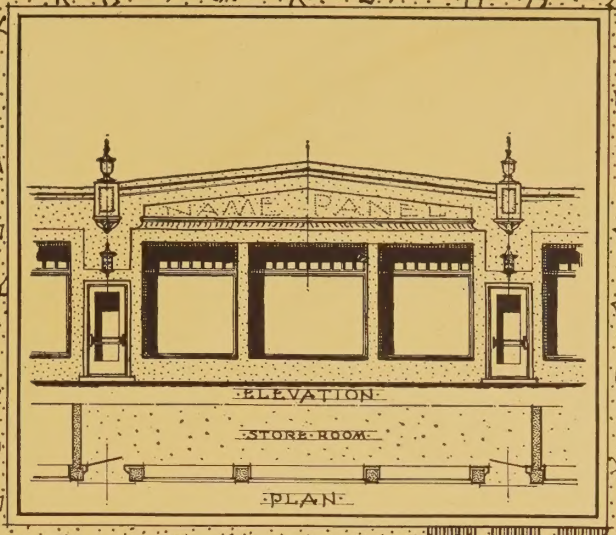


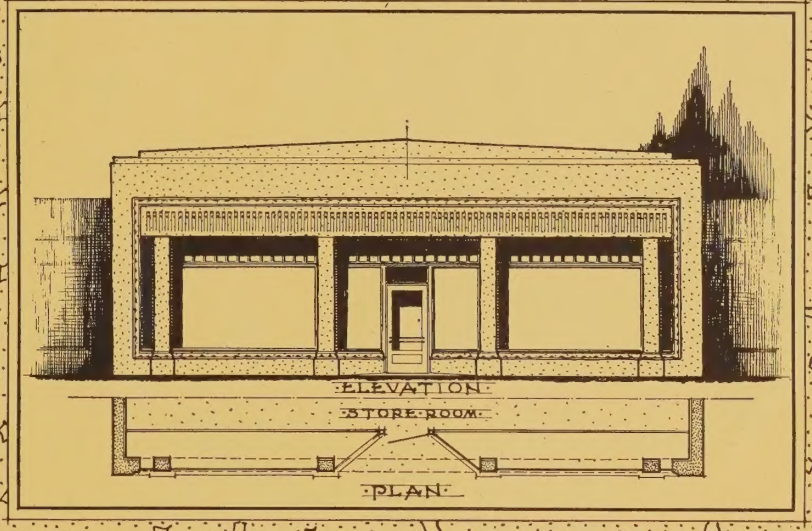


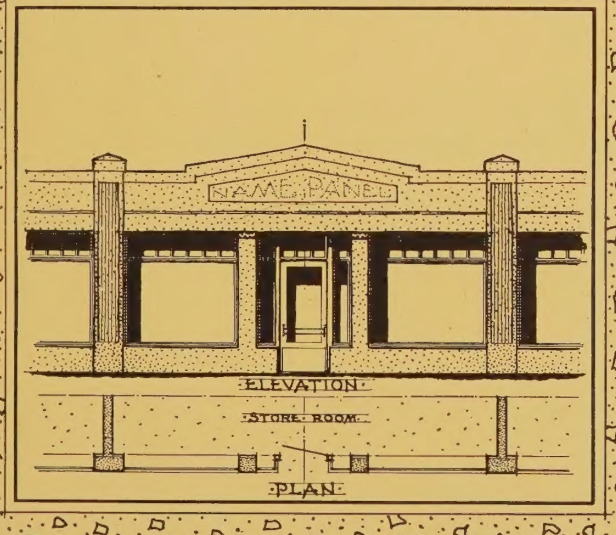


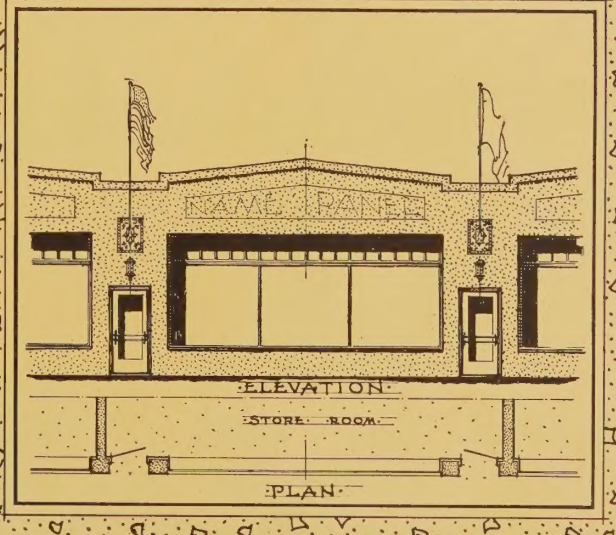
TO KNOW CONCRETE IS TO USE IT — CONSULT AN ARCHITECT











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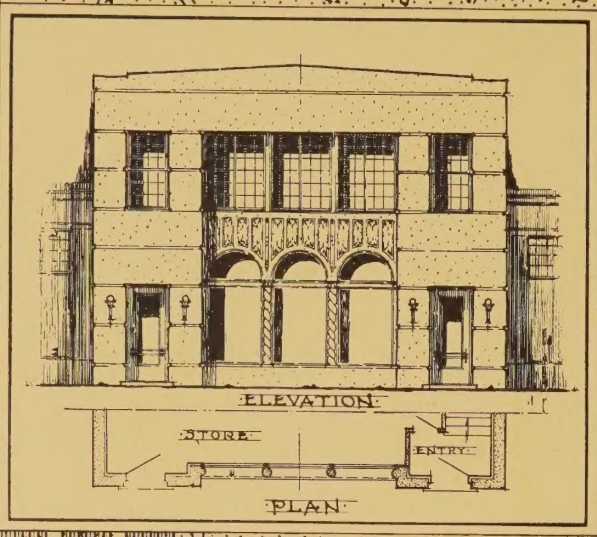
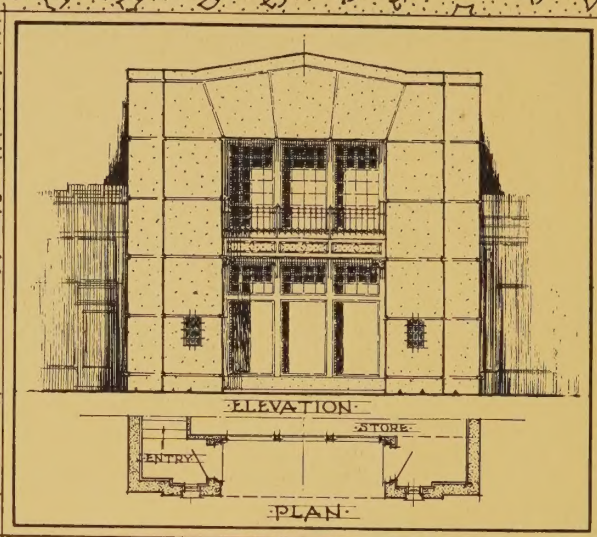
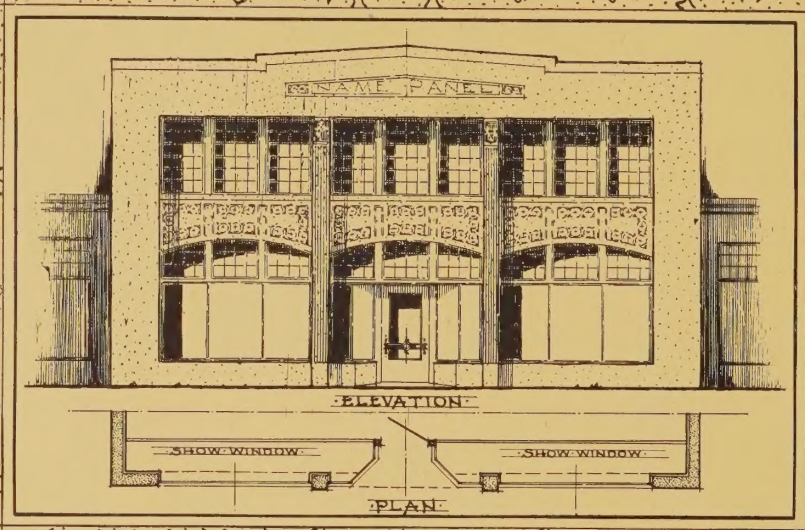
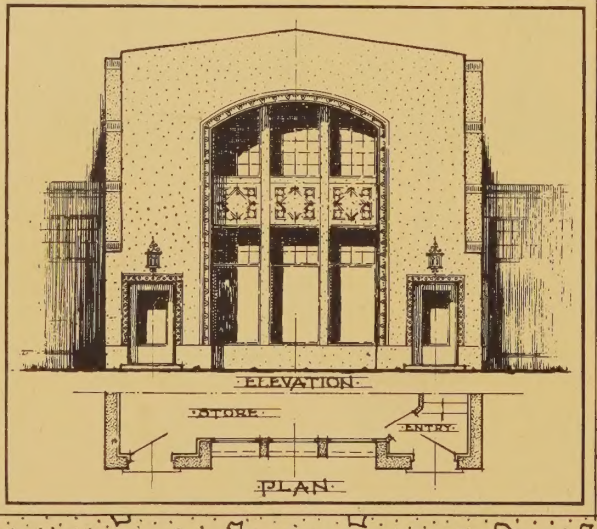
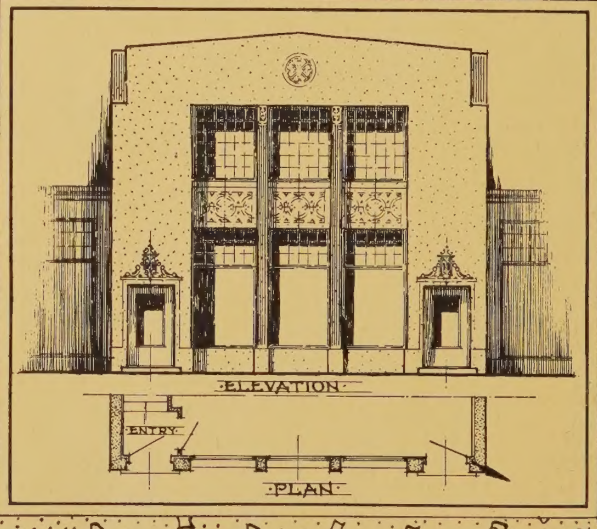


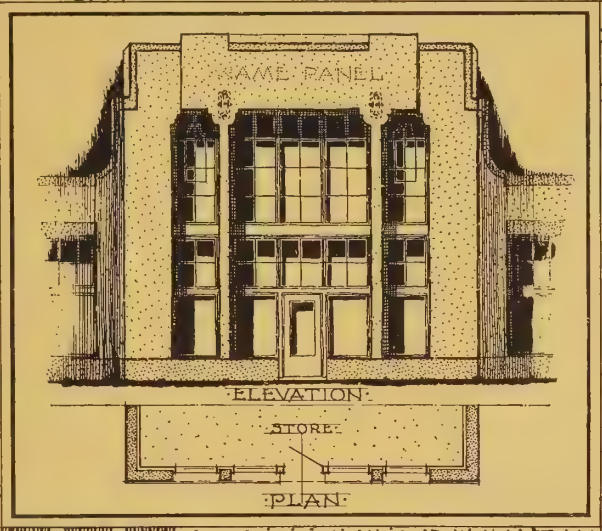


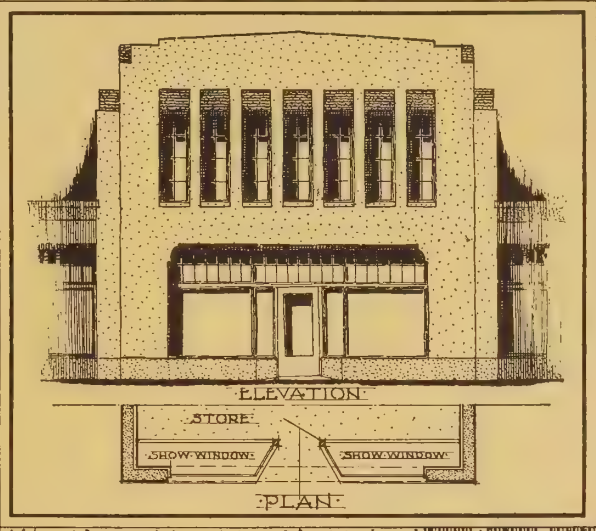


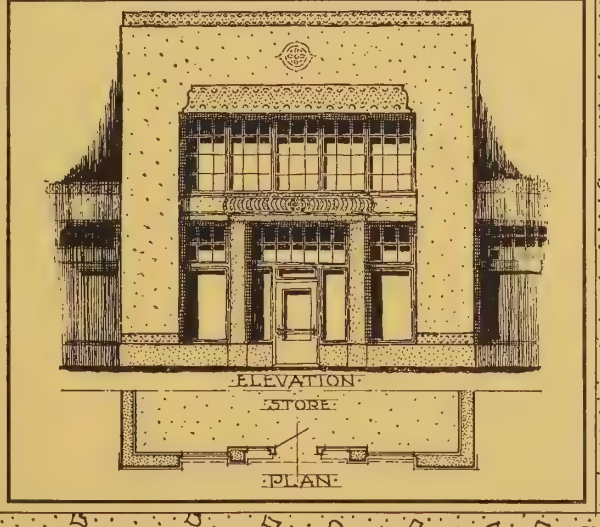


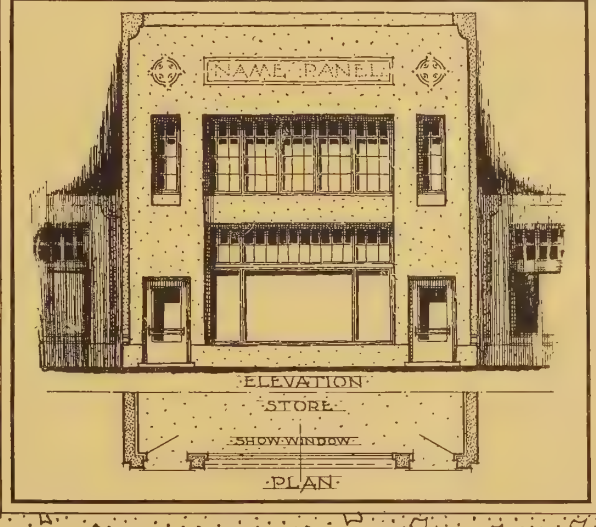


TO · KNOW · CONCRETE · IS · TO · USE · IT —— CONSULT · AN · ARCHITECT









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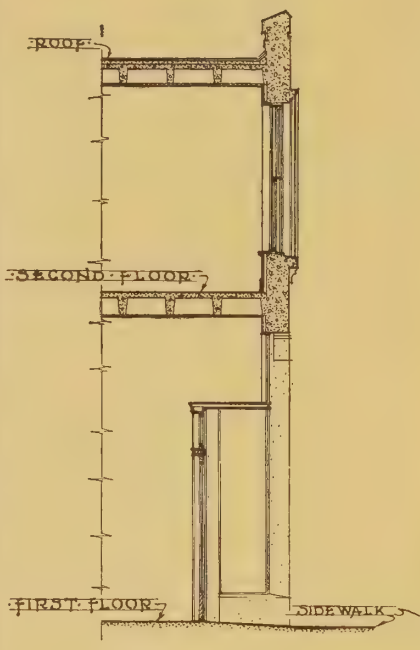

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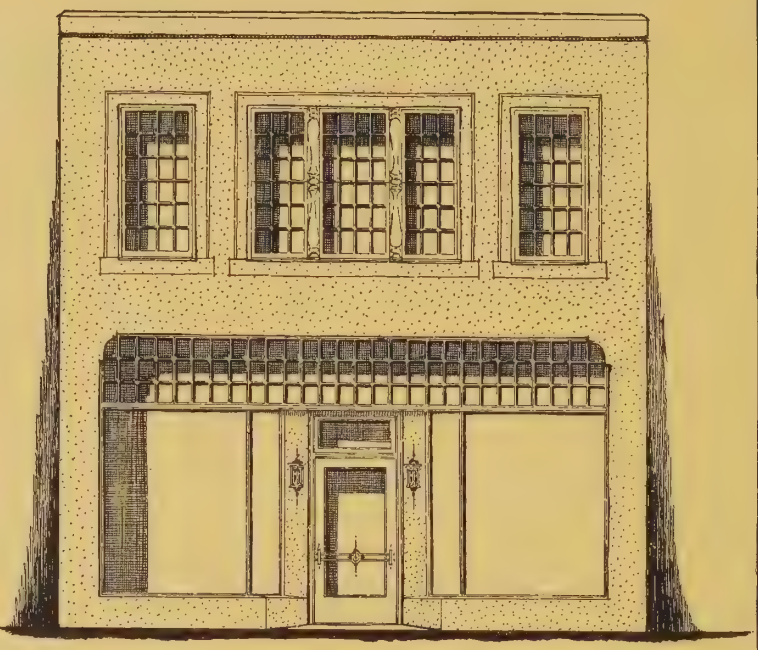

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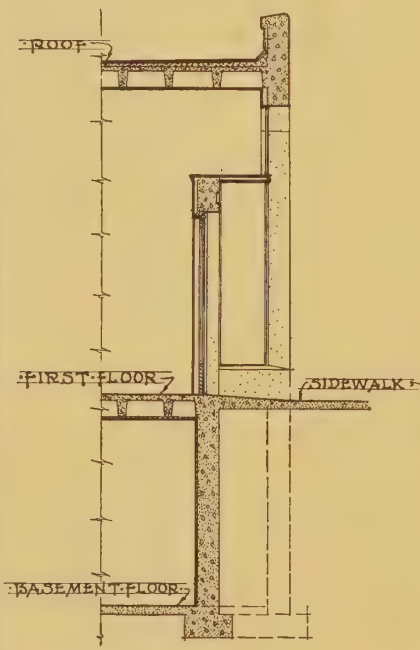

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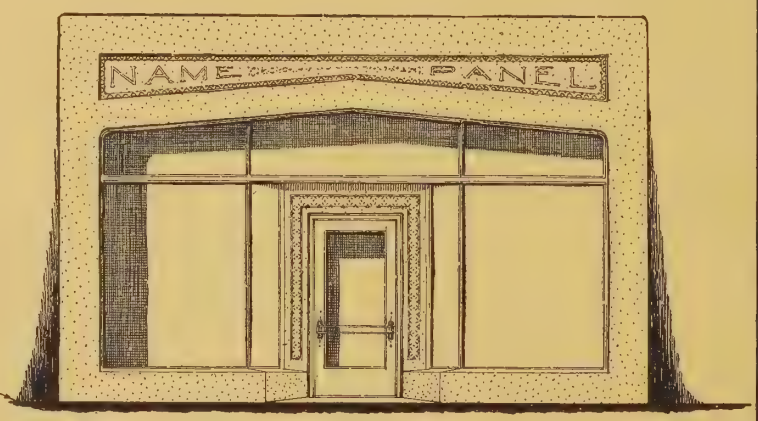

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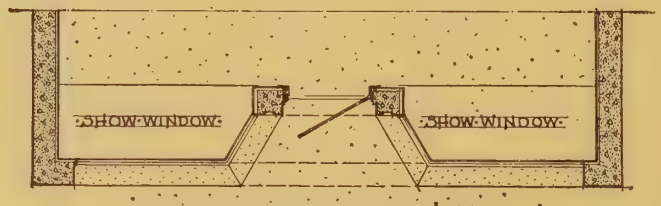

FLOOR PLAN

TO KNOW CONCRETE IS TO USE IT — CONSULT AN ARCHITECT

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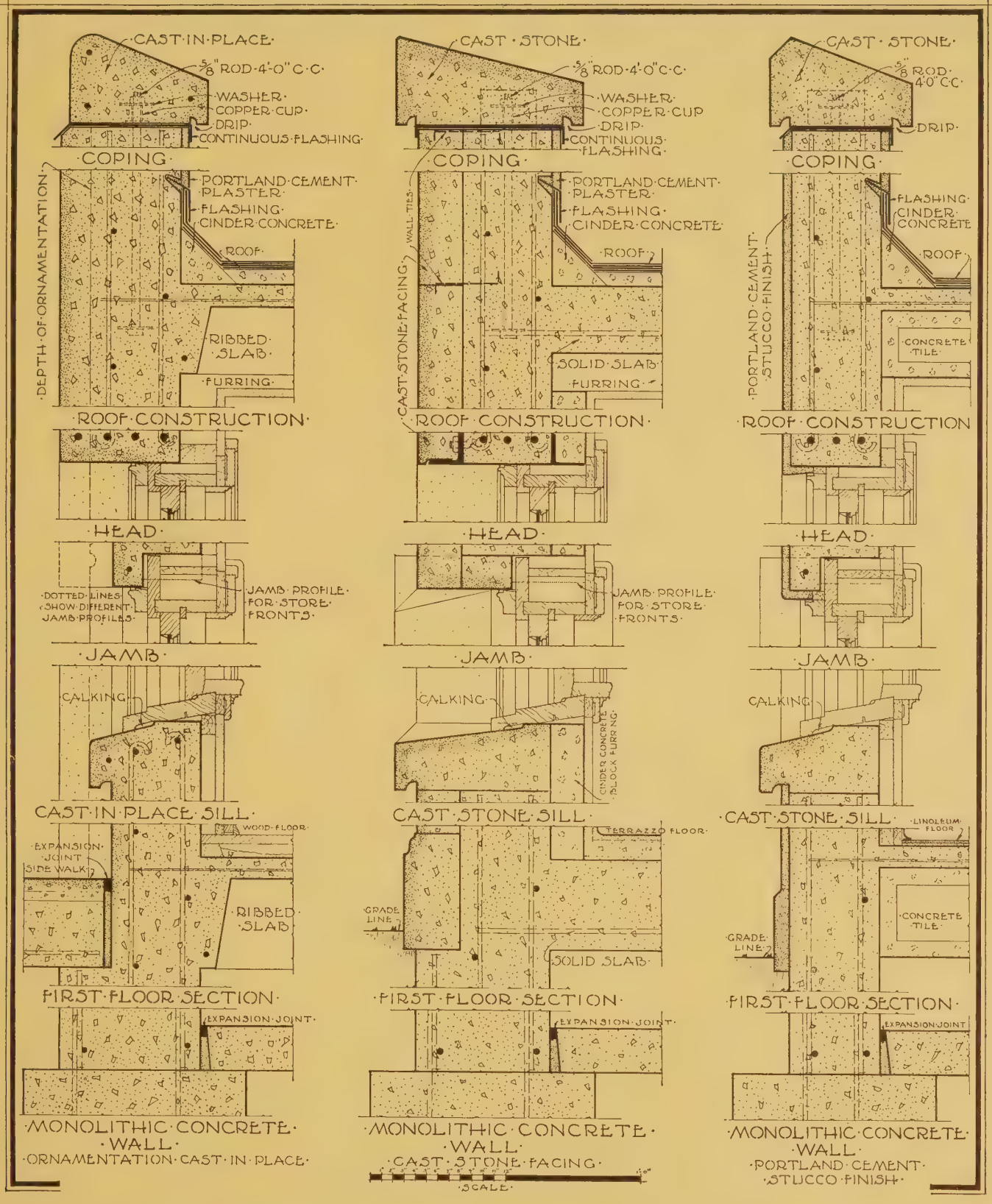
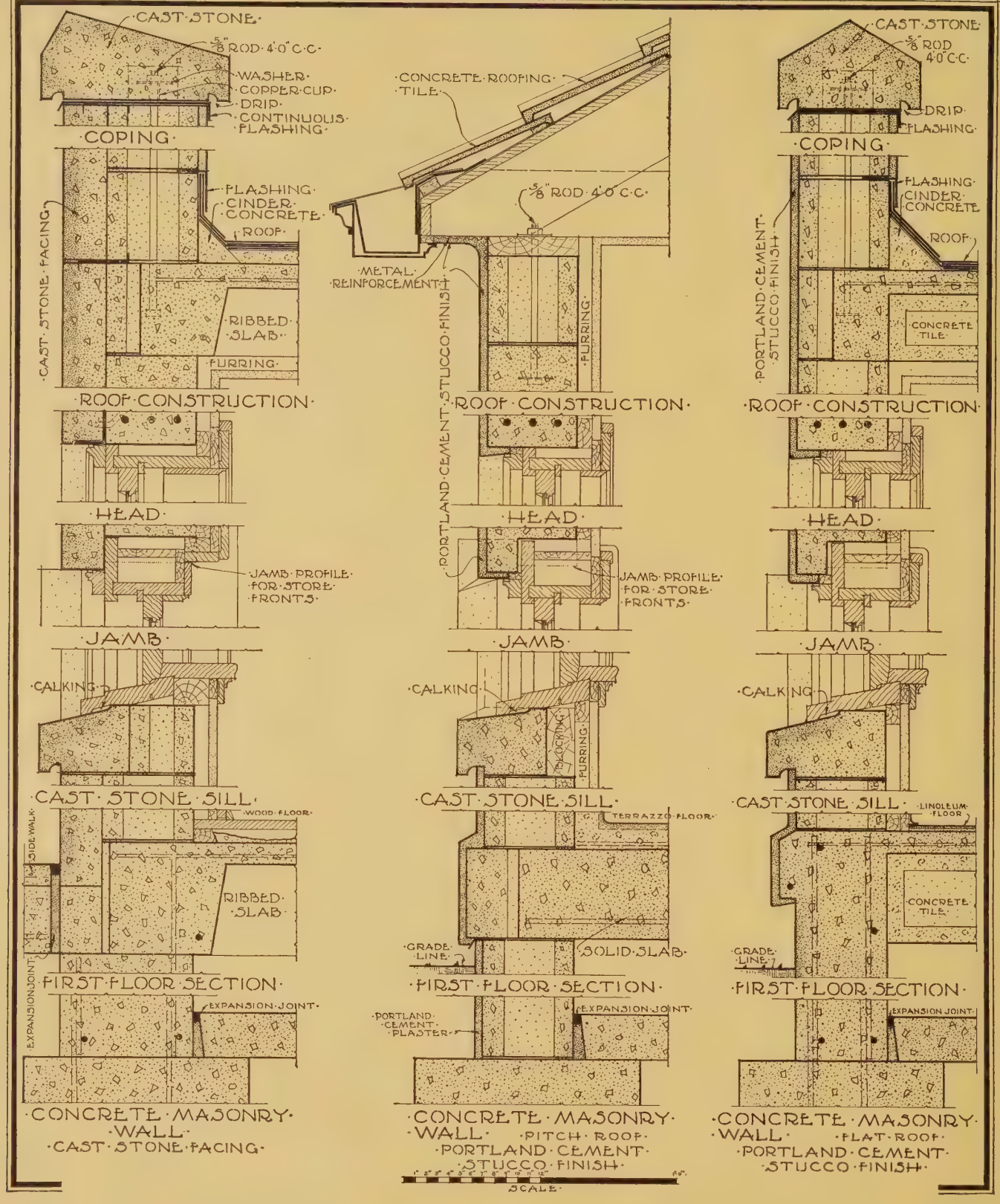


TYPICAL WALL SECTIONS—MONOLITHIC CONCRETE

For adaptation to different types of sash see manufacturers' details.

Portland Cement Association **33 West Grand Avenue, Chicago**

Store Fronts — A. I. A. File No. 4



TYPICAL WALL SECTIONS—CONCRETE MASONRY

For adaptation to different types of sash see manufacturers' details.

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METHODS OF PRODUCING WASTE MOLDS

The greatest advantage to be obtained by the use of monolithic walls is the possibility of producing the architectural treatment as an integral part of the wall. By this method all exterior ornamentation is cast in the structural concrete at the same time and with the same material as used in the walls, columns and floor system.

The following pages of details outline the possibilities that may be obtained with the use of stock wood moldings in the making of reverse molds. These drawings suggest methods of employing simple stock wood moldings that may be secured at any retail lumber yard.

Extreme care should be taken in the making of reverse wood molds to avoid undercuts that will make it impossible to draw the forms. Where heavy undercuts are desired, forms should be made of plaster of paris. All molded surfaces, when formed in concrete, should pitch slightly outward and downward to provide perfect drainage and protection for the ornament.

Reverse wood molds, before being used, should have all sharp corners or edges sanded off so as to be slightly rounded. Small wood moldings should be backed up by solid wood in order to prevent the reverse mold from springing out of shape between points of support.

Carved wood moldings may be used to decorate plaster molds. Care should be taken that the detail in the moldings is not so finely drawn that the effect will be lost in the finished work.

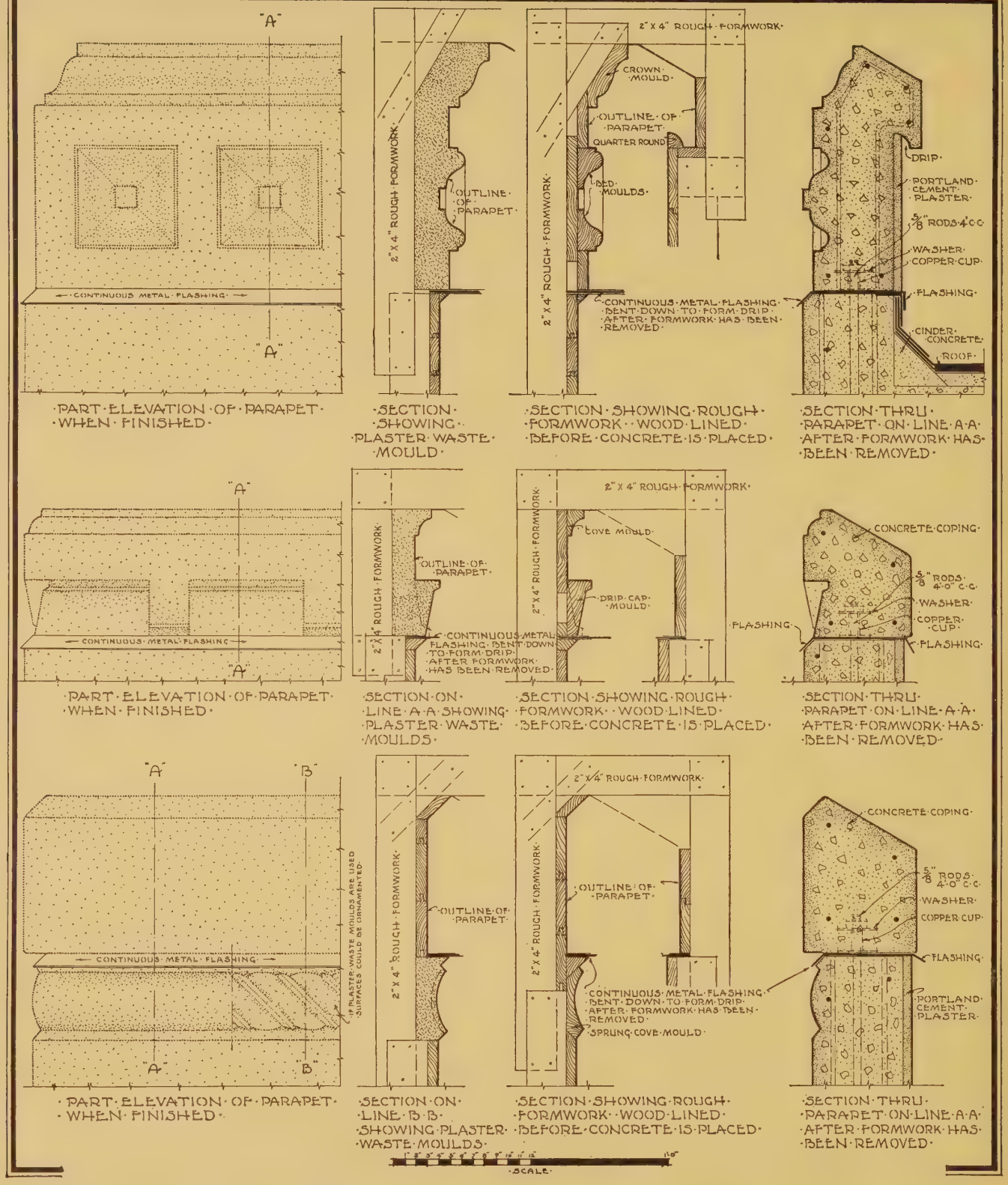
It is suggested that models of the waste mold be made in plaster of paris for approval previous to casting in concrete. This will give a definite idea of the effect that will be produced in the finished ornament.

The method of making waste molds in plaster is well established and known to the architectural profession. Plaster molds may be secured from any ornamental plaster organization. They should be of sufficient thickness and well reinforced with hemp and small pipe to resist the pressure of concrete that will be placed against them. This type of mold permits deep undercuts and more latitude in the development of ornamental work than wood moldings. The face of the mold should be well shellacked before being assembled in the forms.

All waste or reverse molds should be assembled in the wall forms at the proper elevation. The face of the molds should be covered with canvas during the deposition of concrete in the wall. This will protect the face of the mold from splash and disfiguration. The canvas should remain in place until the concrete has reached a position well above the center of the mold, after which it should be withdrawn gradually and carefully as additional concrete is placed. The concreting operation should be continuous and the raising of the canvas done slowly until the mold is completely filled. The weight of the concrete should be sufficient to force the plastic mass into all of the undercuts and depressions of the mold. Spading of the concrete must be done carefully and away from the face of the mold. Excessive spading should be avoided, as this may bring an excess of fine material to the surface.

Another method of filling the waste mold is to pack the face of the mold with one inch of a semi-dry mortar composed of one part of cement and two parts of sand. The concrete should be placed immediately, thus incorporating the facing with the structural concrete. To preserve the same color under this procedure, it is essential to use the same sand and cement for the facing as is used in the balance of the structure.

All waste molds, whether of wood or plaster of paris, should remain in place until the structure is practically completed, thus protecting the ornament from damage during construction and permitting it to cure under ideal conditions. After the building is complete the concrete will have attained sufficient strength to permit breaking off of the plaster molds without damaging the ornament. The decoration may be cleaned with wire brushes and allowed to dry out until uniform in color. If desired, it may then be treated with a fine dash of colored stucco or with an oil stain so as to produce polychrome effects.


"A"
CONTINUOUS METAL FLASHING
"A"
PART ELEVATION OF PARAPET WHEN FINISHED
2" X 4" ROUGH FORMWORK
OUTLINE OF PARAPET
SECTION SHOWING PLASTER WASTE MOULD
2" X 4" ROUGH FORMWORK
CROWN MOULD
OUTLINE OF PARAPET
QUARTER ROUND
BED MOULDS
CONTINUOUS METAL FLASHING BENT DOWN TO FORM DRIP AFTER FORMWORK HAS BEEN REMOVED
SECTION SHOWING ROUGH FORMWORK WOOD LINED BEFORE CONCRETE IS PLACED
DRIP
PORTLAND CEMENT PLASTER
5/8" RODS 4'C.C.
WASHER
COPPER CUP
FLASHING
CINDER CONCRETE
ROOF
SECTION THRU PARAPET ON LINE A-A AFTER FORMWORK HAS BEEN REMOVED
"A"
CONTINUOUS METAL FLASHING
"A"
PART ELEVATION OF PARAPET WHEN FINISHED
2" X 4" ROUGH FORMWORK
OUTLINE OF PARAPET
2" X 4"
CONTINUOUS METAL FLASHING BENT DOWN TO FORM DRIP AFTER FORMWORK HAS BEEN REMOVED
SECTION ON LINE A-A SHOWING PLASTER WASTE MOULDS
2" X 4" ROUGH FORMWORK
COVE MOULD
DRIP CAP MOULD
FLASHING
SECTION SHOWING ROUGH FORMWORK WOOD LINED BEFORE CONCRETE IS PLACED
CONCRETE COPING
5/8" RODS 4'-0" C.C.
WASHER
COPPER CUP
FLASHING
SECTION THRU PARAPET ON LINE A-A AFTER FORMWORK HAS BEEN REMOVED
"A"
"B"
CONTINUOUS METAL FLASHING
"A"
"B"
PART ELEVATION OF PARAPET WHEN FINISHED
IF PLASTER WASTE MOULDS ARE USED SURFACES COULD BE ORNAMENTED
2" X 4" ROUGH FORMWORK
OUTLINE OF PARAPET
SECTION ON LINE B-B SHOWING PLASTER WASTE MOULDS
2" X 4" ROUGH FORMWORK
OUTLINE OF PARAPET
CONTINUOUS METAL FLASHING BENT DOWN TO FORM DRIP AFTER FORMWORK HAS BEEN REMOVED
SPRUNG COVE MOULD
SECTION SHOWING ROUGH FORMWORK WOOD LINED BEFORE CONCRETE IS PLACED
CONCRETE COPING
5/8" RODS 4'-0" C.C.
WASHER
COPPER CUP
FLASHING
PORTLAND CEMENT PLASTER
SECTION THRU PARAPET ON LINE A-A AFTER FORMWORK HAS BEEN REMOVED
SCALE

DETAILS OF MOLDED PARAPETS—MONOLITHIC CONCRETE

These details show method of constructing rough formwork and the use of stock wood moldings to obtain different molded effects in the concrete. Also the use of plaster waste molds to obtain the same effects. Inserts of cast stone medallions may also be used to decorate the surface.

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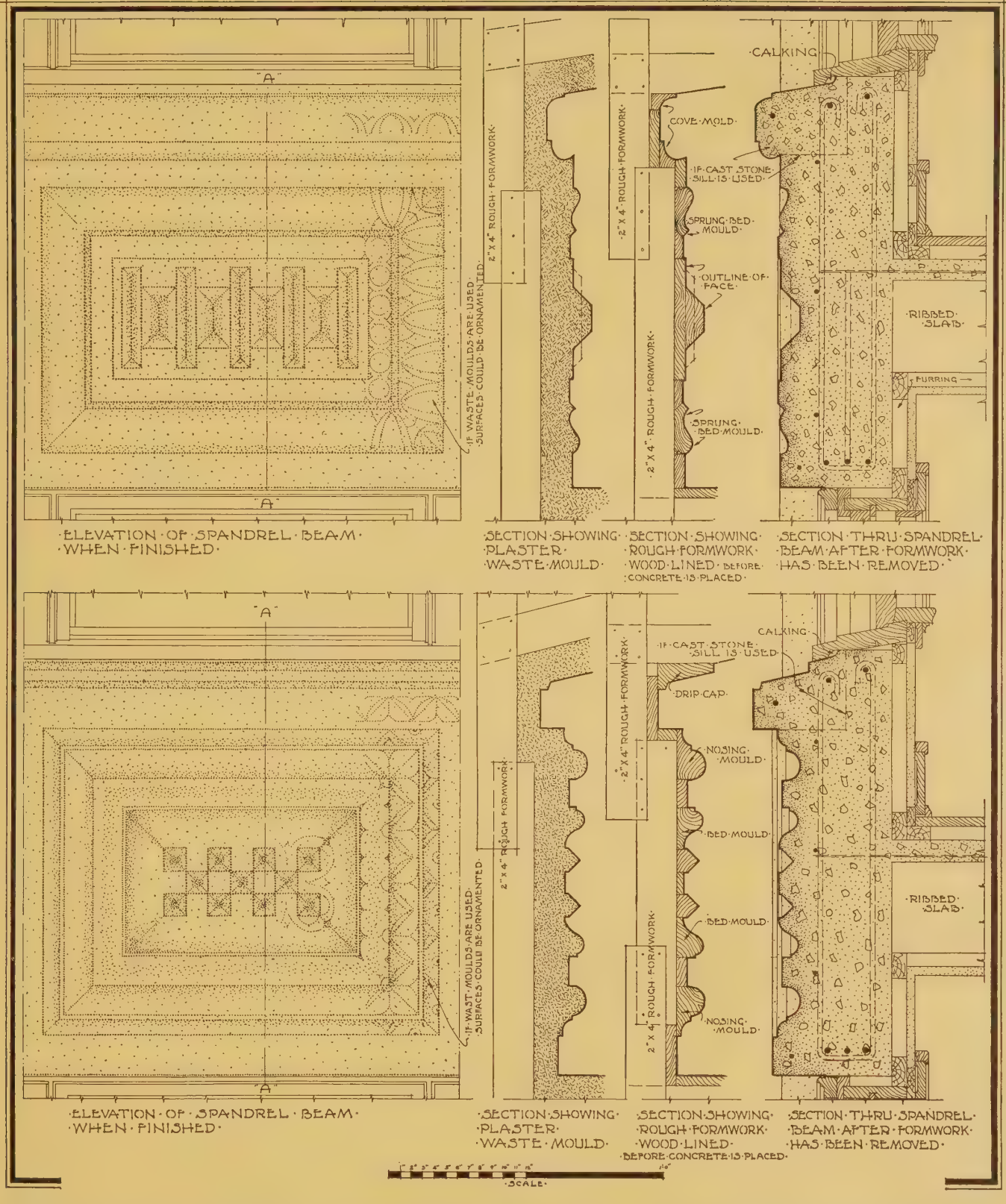

DETAILS OF MOLDED SPANDREL BEAMS—MONOLITHIC CONCRETE

These details show method of constructing rough formwork and the use of stock wood moldings to obtain different molded effects in the concrete. Also the use of plaster waste molds to obtain the same effects. Inserts of cast stone medallions may also be used to decorate the surface.

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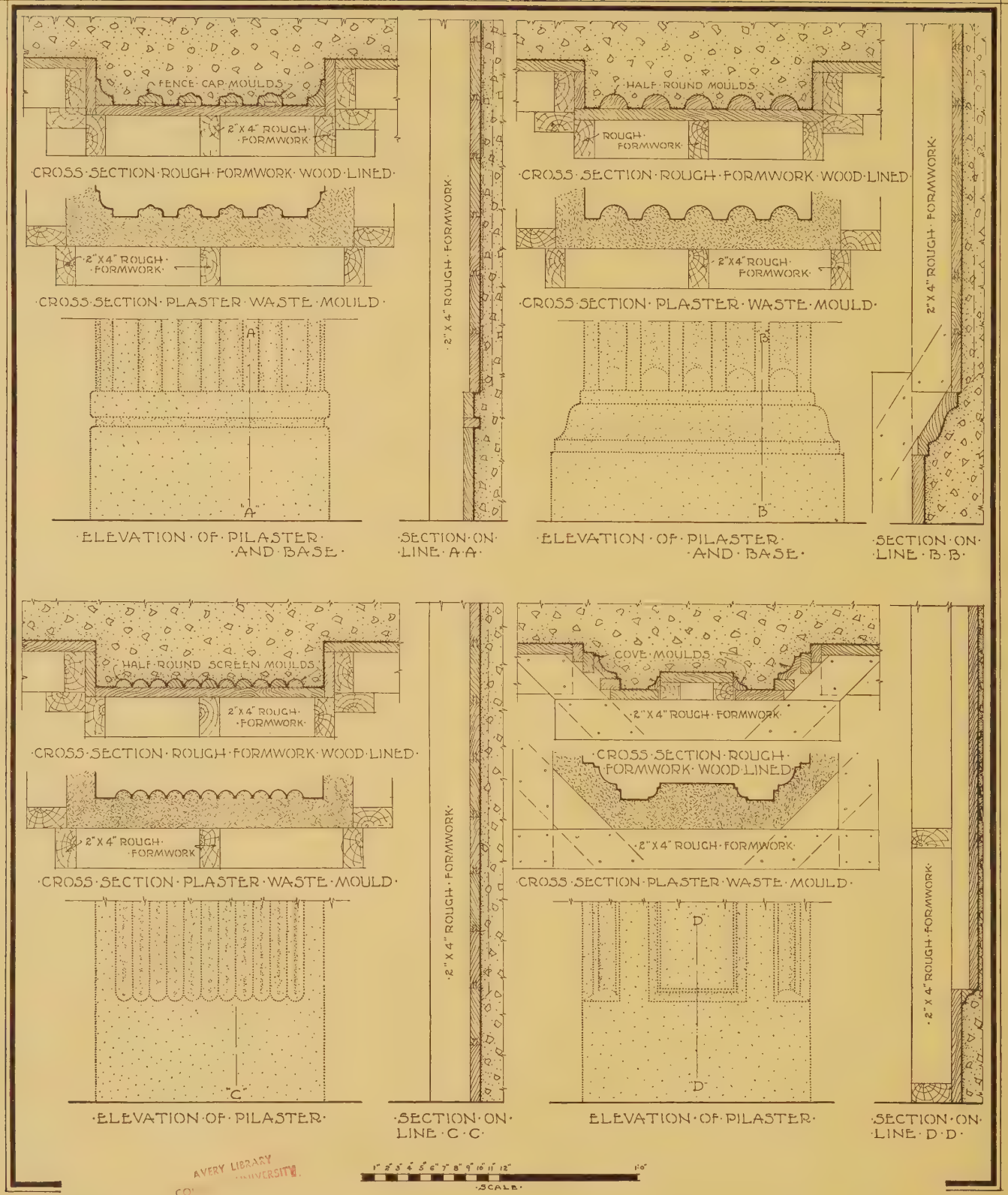

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DETAILS OF MOLDED PILASTERS—MONOLITHIC CONCRETE

These details show method of constructing rough formwork and the use of stock wood moldings to obtain different molded effects in the concrete. Also the use of plaster waste molds to obtain the same effects. Inserts of cast stone medallions may also be used to decorate the surface.

Portland Cement Association **33 West Grand Avenue, Chicago**

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SPECIFICATIONS FOR SMALL STORE BUILDINGS

MONOLITHIC CONCRETE
CONCRETE MASONRY

GENERAL

Excavations

Excavations shall be made to the depths shown on the plans. Excavations for all footings and basement floors shall be level. Water shall be removed from excavations before concrete is deposited. Any flow of water into the excavation shall be diverted through proper side drains to a sump, or be removed by other approved methods which will avoid washing the freshly deposited concrete. Water vent pipes and drains shall be filled by grouting or otherwise, after the concrete has thoroughly hardened.

Design of Forms

Forms shall conform to the shape, lines and dimensions of the members as shown on the plans. They shall be substantial and sufficiently tight to prevent leakage of mortar; they shall be properly braced or tied together so as to maintain position and shape and insure safety to workmen and passersby. Temporary openings shall be provided where necessary to facilitate cleaning and inspection immediately before depositing concrete. On exposed surfaces of monolithic concrete, tongue and groove lumber — in. wide shall be used for forms.

(**Note:** Exposure should not exceed 5½ in.)

Removal of Forms

The removal of forms shall be carried out in such a manner as to insure the complete safety of the structure. Where the concrete is supported on shores, the removable floor forms, beams and girder sides, column and similar vertical forms may be removed after 24 hours, provided the concrete has hardened sufficiently to be self sustaining. In no case shall the shoring or supports be removed until the concrete has hardened for two weeks or until the member has acquired sufficient strength to support safely its weight and the load upon it.

Cleaning and Bending Reinforcement

Metal reinforcement, before being placed, shall be free from rust, scale or other coatings that will destroy or reduce the bond. Reinforcement shall be formed to the dimensions indicated on the plans. Bars shall be bent cold around a pin having a diameter of four or more times the least dimension of the bar.

Metal reinforcement shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the plans shall not be used. Heating of reinforcement for bending will not be permitted.

Placing Reinforcement

Metal reinforcement shall be accurately placed and secured, and shall be supported by concrete or metal chairs or spacers or metal hangers, in the exact position shown on the plans.

MATERIALS

Portland Cement

Portland cement shall be of American manufacture and shall conform to the "Standard Specifications and Tests for Portland Cement" (Serial Designation: C9-26) of the American Society for Testing Materials.

Concrete Aggregates

Aggregates shall conform to the "Tentative Specifications for Concrete Aggregates" (Serial Designation: C33-28T) of the American Society for Testing Materials.

The maximum size of the aggregate shall be not larger than one-fifth of the narrowest dimension between forms of the member for which the concrete is to be used, nor larger than three-fourths of the minimum clear spacing between reinforcing bars. By maximum size of aggregate is meant the clear space between the sides of the smallest square opening through which 95 per cent by weight of the material can be passed.

Water

Water used in mixing concrete shall be clean, and free from strong acids, alkalis, oil, or organic materials.

Hydrated Lime

Hydrated lime for use in mortar shall conform to the "Standard Specifications for Hydrated Lime for Structural Purposes" (Serial Designation: C6-24) of the American Society for Testing Materials.

Metal Reinforcement

Metal reinforcement shall conform to the requirements of the "Standard Specifications for Billet-Steel Concrete Reinforcement Bars" of intermediate grade (Serial Designation: A15-14) or the "Standard Specifications for Rail-Steel Concrete Reinforcement Bars" (Serial Designation: A16-14) of the American Society for Testing Materials.

Wire for concrete reinforcement shall conform to the requirements of the "Tentative Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement" (Serial Designation: A82-27) of the American Society for Testing Materials.

CONCRETE

Water-Cement Ratio

Concrete for structural members shall be proportioned to give the necessary workability without exceeding the water-cement ratios given in the following schedule:

Location	Water-Cement Ratio U. S. gal. water per sack of cement
Footings, Foundation and Basement Walls, Structural Floor Slabs, Interior Columns or Piers.	7½
All exterior walls above grade	6

By the water-cement ratio is meant the net quantity of water in the concrete mixture, including the surface water carried by the aggregate, expressed in terms of the quantity of cement.

Proportions and Consistency

The proportions of aggregates to cement for concrete of any water-cement ratio shall be such as to produce concrete that will work readily into the corners and angles of the form and around the reinforcement without excessive puddling or spading and without permitting the materials to segregate or free water to collect on the surface. The combined aggregate shall be of such composition of sizes that, when separated by the No. 4

standard sieve, the weight retained on the sieve shall be not less than one-third nor more than two-thirds of the total, nor shall the amount of coarse material be such as to produce harshness in placing or honeycombing in the structure. When forms are removed, the faces and corners of the members shall show smooth and sound throughout.

The methods of measuring the materials shall be such that the proportion of water to cement can be accurately controlled during the progress of the work and easily checked at any time by the architect or his authorized representative.

Mixing

The concrete shall be mixed until there is a uniform distribution of the materials and the mass is uniform in color and homogeneous. The mixer shall be of such type as to insure the maintaining of the correct proportions of the ingredients. The mixing shall continue for at least one minute after all the ingredients are in the mixer

Transporting

Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent the separation or loss of the ingredients. It shall be deposited as nearly as practicable in its final position to avoid rehandling or flowing. Under no circumstances shall concrete that has partially hardened be deposited in the work.

Placing

When concreting is once started, it shall be carried on as a continuous operation until the placing of the section or panel is completed.

Concrete shall be thoroughly compacted by puddling with suitable tools during the operation of placing, and thoroughly worked around the reinforcement, around embedded fixtures, and into the corners of the forms.

Curing

Exposed surfaces of concrete shall be kept moist for a period of at least ten days after being deposited. In hot weather, exposed concrete shall be thoroughly wetted at least twice daily during the first week.

Depositing in Cold Weather

When depositing concrete at freezing or near freezing temperatures, the concrete shall have a temperature of at least 50° F., but not more than 120° F. The concrete shall be maintained at a temperature of at least 50° F. for not less than 72 hours after placing. When necessary, concrete materials shall be heated before mixing. Salt or other chemicals for the prevention of freezing shall not be used. No frozen materials or materials containing ice shall be used. Manure shall not be applied directly to concrete when used for protection.

CONCRETE MASONRY

Block and Tile

Concrete block and tile shall meet the requirements of the "Standard Specifications for Concrete Building Block and Concrete Building Tile" of the American Concrete Institute. Concrete block or tile for exterior walls shall meet the compressive strength requirements for "Load-bearing Block or Tile," and for interior partitions unless otherwise noted on the plans shall meet the compressive strength requirements for "Non-load-bearing Block or Tile" of the above specifications.

Mortar

Concrete block and tile shall be laid in portland cement mortar mixed in the proportion of one part portland cement, one part hydrated or well-slaked lime and six parts sand, all proportions by volume. All mortar joints shall be cut flush with the wall surface.

FLOOR FINISHES
ONE-INCH CEMENT FINISH TOPPING

Base Slab

The surface of the structural base slab shall be finished reasonably true and struck off at a level not less than one inch below the required finish grade.

As soon as the condition of the concrete base permits, and before it has fully hardened, all dirt, laitance and loose aggregate shall be removed from the surface by means of a wire broom, which shall leave the coarse aggregate slightly exposed, or the surface otherwise roughened to improve bond with the topping.

When it is impossible to remove laitance and roughen the slab by brooming, the surface shall be cleaned and prepared for bond by chipping after the base has hardened.

Just prior to placing the finish, the base shall be thoroughly cleaned by scrubbing, to the satisfaction of the architect.

Aggregates

Both fine and coarse aggregates shall be used in the finish. Fine aggregate shall consist of clean, hard sand or crushed stone screenings free from dust, clay, loam or vegetable matter. All particles shall pass a ¼-inch sieve and shall be graded from fine to coarse with the coarse particles predominating. Not more than 5 per cent shall pass a 100-mesh, and not more than 10 per cent shall pass a 50-mesh sieve.

Coarse aggregate shall consist of clean, hard pea gravel, or crushed stone, free from dust, clay, loam or vegetable matter and from coatings which will tend to weaken the bond. It shall contain no soft, flat or elongated fragments, and shall be graded from ⅛ to ⅜ inch; all particles shall pass a ½-inch mesh sieve.

Mixture

The mixture shall be 1 part of portland cement, 1 part of fine aggregate, and 2 parts of coarse aggregate by volume. This nominal mix may be slightly varied, depending upon the local conditions and grading of the aggregate and as the architect may direct. If the aggregate is very coarse, the gravel or stone should be reduced to 1½ parts. In no case shall the volume of the coarse aggregate be less than one and one half times the volume of the fine.

The mixture shall be determined by the architect and once established shall not be changed except upon his written order.

Not more than 5 gallons of mixing water including the surface moisture in the aggregates shall be used for each sack of portland cement in the mixture.

Consistency

The concrete shall be of the driest consistency possible to work with a sawing motion of the strike-off board or straightedge. Changes in consistency shall be obtained by adjusting the proportions of fine and coarse aggregate within the limits specified. In no case shall the specified amount of mixing water be exceeded.

Placing and Compacting

The base slab shall be thoroughly wetted just prior to the placing of the finish, but there shall be no pools of water left standing on the wetted surface. A thin coat of neat cement grout

shall be broomed into the surface of the slab for a short distance ahead of the topping. The wearing course shall be immediately applied before the grout has hardened, and brought to the established grade with a straightedge.

Finishing by Troweling

After striking off the wearing course to the established grade, it shall be compacted with a wood float. The surface shall be tested with a straightedge to detect high and low spots which shall be eliminated. After 30 to 45 minutes the finish shall be brought to a smooth surface free from defects and blemishes by steel troweling. No dry cement or mixture of dry cement and sand shall be sprinkled directly on the surface of the wearing course to absorb moisture or to stiffen the mix. After the concrete has further hardened additional troweling may be required. This shall be done as may be directed by the architect.

Curing and Protection

All freshly placed concrete shall be protected from the elements and from all defacement due to building operations. The contractor shall provide and use when necessary tarpaulins to completely cover or enclose all freshly finished concrete.

As soon as the concrete has hardened to prevent damage thereby, it shall be covered with at least one (1) inch of wet sand, or other covering satisfactory to the architect, and shall be kept continually wet by sprinkling with water for at least ten (10) days.

OTHER TYPES OF FLOOR FINISH

NOTE: Precast concrete tile, art marble, linoleum and other types of floor finishes should be laid under the manufacturer's specifications. For specifications on terrazzo finish and heavy duty floors see Portland Cement Association publication, "Concrete Floor Finishes," copy of which will be furnished on request.

SURFACE TREATMENTS OF WALLS

NOTE: The method of treating the exterior walls will depend on whether monolithic concrete or concrete masonry is used and the effect the architect desires to produce. In monolithic concrete construction the character of the concrete may be brought out by cleaning the surface after the forms are removed. Some further refinement of surface may be obtained by grinding with carborundum, without obliterating the form marks or by a dash coat of stucco to control the color. The latter method does not hide the form marks and gives a very interesting surface. Two and three coat stucco may be used on either monolithic or concrete masonry construction with an infinite variety of effects. Sgraffito and painted stencils also offer great possibilities, but should be covered by special specifications. Decorative features may be cast in place by the insertion of reverse plaster molds in the forms or may be of precast concrete. The entire surface may be precast concrete backed up with concrete block and tile masonry.

Surfaces that are to be left as they come from the forms must be detailed carefully. A good grade of tongue and groove lumber should be used for the exterior forms. Wide boards tend to make the structure look heavy and clumsy while narrow boards dwarf the design. A 6 inch stock size is recommended. All boards should be of the same width and laid horizontally and level around the structure with the joints well staggered. The ends of the boards should be kept in a true plane unless the architect desires to accentuate the joints. In this case the ends of the boards may be wedged out so as to produce a rugged effect.

The specifications below cover a few types of exterior finishes. Paragraphs suitable for the type of construction and finish chosen may be selected by the architect.

EXTERIOR FINISH FOR MONOLITHIC CONCRETE WALLS

Preparation of Surface

Immediately after stripping forms the surfaces of all exterior walls shall be brushed vigorously with a wire brush to remove all dirt and fins. All holes or honeycomb spots shall be filled with mortar of the same materials and composition as the mortar in the concrete of the wall.

NOTE: The above paragraph should be included for all types of finishes on monolithic concrete walls. The walls may be left in this condition or further treatments may be given.

Ground Finish

The exterior wall surfaces shall then be ground with a portable electric-driven grinder, removing all projections and until the surface is smooth but without removing all form marks. A trial sample of the finish at least 3 ft. square shall be made on one of the rear walls to meet the approval of the architect. The subsequent work shall then be similar in all respects to the approved sample.

Dash Coat Stucco

A thin stucco coat consisting of one part portland cement and one and one-half parts sand (add color if desired) mixed to a creamy consistency shall be forcibly applied with a dash brush. When the stucco has hardened it shall be sprinkled immediately and shall be sprinkled at least twice each day for a period of four days.

Cast-in-Place Ornamental Trim

Ornamental features indicated on the plans shall be cast-in-place concrete. Plaster molds meeting the approval of the architect shall be firmly set in the forms at the elevations shown. A canvas cover shall be placed over the inside face of each plaster mold and shall remain in place until the level of the concrete in the wall form reaches the middle of the mold. The canvas shall then be slowly lifted allowing the concrete to enter the mold. Every precaution shall be taken to completely fill the mold. All plaster molds shall remain in place until the exterior walls are complete and are being cleaned when they shall be carefully chipped off without damaging the concrete. The ornamental features shall then be given the same treatment as the wall surfaces. (Special treatments such as staining may be specified also.)

Cast Stone

Cast stone shall conform to the requirements of the "Tentative Standard Specifications for Cast Stone" of the American Concrete Institute. Cast stone shall be tied to the wall by a header for each 300 square inches of wall surface or by substantial non-corrodible metal wall ties meeting the approval of the architect and spaced not farther apart than 1 foot vertically and 2 feet horizontally. Cast stone shall be set in mortar mixed in the proportion of one part portland cement, one part hydrated or well-slaked lime and six parts sand by volume. Joints shall be pointed with mortar mixed in the proportion of one part portland cement and two parts sand by volume.

PORTLAND CEMENT STUCCO

Portland cement stucco shall be applied on all exterior wall surfaces indicated on the plans and shall consist of three coats having a total thickness of not less than ⅞ inch. The proportion for all coats (except dash coat on monolithic concrete) shall be one part portland cement and three parts sand by volume to which may be added hydrated lime in an amount not to exceed one-fifth the volume of cement. (Special provision should be made for prepared and colored stucco finishes.) The materials shall be thoroughly mixed, preferably in a batch mixer, for at least five minutes. The quantity of water shall be determined by trial and then measured in proper proportions.

The surface on which stucco is to be applied shall be clean, free from all dust, dirt or loose particles, preferably rough and of coarse texture. All surfaces shall be properly wetted to control suction before applying each coat of stucco.

The application of stucco shall be carried on continuously in one direction, without allowing the stucco to dry at the edge.

First Coat (on Monolithic Concrete)

The first coat shall consist of one part portland cement and one and one-half parts sand by volume mixed to a mushy consistency and shall be forcibly dashed on the surface with a dash brush. It shall be left rough to give a good bond to the brown coat.

First Coat (on Concrete Masonry)

The first coat shall be ⅜ inch thick and shall be trowelled on tight, filling all depressions in the wall surface. It shall be cross-scratched to provide a strong mechanical bond.

Brown Coat

The brown coat shall be brought to a true even surface giving a total thickness to scratch and brown coats of ¾ inch. It shall be roughened with a wood float to provide bond for the finish coat.

Finish Coat

The finish coat shall be applied not less than one week after the application of the brown coat and shall be of such thickness as required by the texture with a minimum of ⅛ inch. A sample panel two feet square showing the texture shall be submitted to the architect and shall be approved by him before the finish coat is applied. The finish coat shall then be applied with texture exactly like approved sample.

Protection and Curing

Each stucco coat shall be protected from intense sun or wind by wet burlap or canvas until it has hardened sufficiently to permit sprinkling. Each coat shall be kept constantly moist for at least two days and then allowed to dry before the succeeding coat is applied.

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PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete
33 West Grand Avenue
CHICAGO
Offices in Principal Cities

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Publications on the following subjects of special interest to architects are available on request

MONOLITHIC BUILDINGS

Methods of constructing monolithic concrete buildings and some of the most beautiful examples in this medium in America.
Methods of decorating exterior and interior surfaces of concrete.

CONCRETE MASONRY

Details of construction with concrete masonry and specifications.
Concrete masonry homes.
Plans of concrete masonry homes prepared by Small House Service Bureau.
Small home garages of concrete masonry.
Concrete masonry in large buildings.

CAST STONE

PORTLAND CEMENT STUCCO

FLOORS

Concrete floors for residences.
Concrete floor finishes for all purposes.

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Vaulted sidewalks.

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Design and control of concrete mixtures for producing concrete of predetermined strength and quality.
Garden walls, seats, pools and walks.
Plans of farm structures such as poultry houses, milk houses, ice houses, smoke houses, hog houses, grain bins, corn cribs, manure pits, garages, machine sheds, storage cellars, water supply tanks, general barns, bull pens, dairy barns, farm residences.

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